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stars should happen to be thus situated in line with a nebula is manifestly beyond the bounds of probability; there can be no doubt that these novae were actually in the spiral nebulae. The occurrence of these new stars in spirals must be regarded as having a very definite bearing on the "island universe" theory of the constitution of the spiral nebulae.

H. D. CURTIS.

July 28, 1917.

#### THE SPECTRA OF SOME DOUBLE STARS.

The spectra of the components of the following double stars have been observed at Mount Wilson recently with the Cassegrain spectrograph. The magnitudes and the separations for most of these stars are from a list due to Professor Aitken.

	R. A. 1900	Dec.	Mag.	Dis.	Spectrum
$\Sigma$ 3062	0 <sup>h</sup> 1 <sup>m</sup> .0	+57° 53'	6.5 - 7.5	1".6	G <sub>1</sub> - G <sub>2</sub>
$\eta$ <i>Cassiope</i>	0 43 .0	+57° 17'	3.6 - 7.9	6".5	G <sub>1</sub> - K <sub>2</sub>
$\zeta$ <i>Cancer</i>	8 6 .5	+17° 57'	5.6, 6.3 - 6.0	6"	F <sub>1</sub> - G <sub>1</sub>
$\epsilon$ <i>Hydrae</i>	8 41 .5	+ 6° 47'	3.5 - 7.5	3".2	G <sub>1</sub> - F <sub>1</sub>
$\xi$ <i>Urs. Maj.</i>	11 12 .9	+32° 6'	4.4 - 4.9	3".0	F <sub>1</sub> - G <sub>2</sub>
$\epsilon$ <i>Boötis</i>	14 40 .6	+27° 30'	2.7 - 5.1	2".8	G <sub>1</sub> - A <sub>1</sub>
$\xi$ <i>Boötis</i>	14 46 .8	+19° 31'	4.7 - 6.6	2".0	G <sub>1</sub> - K <sub>2</sub>
$\mu$ <i>Herculis</i>	17 42 .5	+27° 47'	3.5 - 10.0, 10.1	32"	G <sub>1</sub> - M <sub>b</sub>
70 <i>Ophiuchi</i>	18 0 .4	+ 2° 31'	4.1 - 6.1	4".5	K <sub>1</sub> - K <sub>2</sub>

In all cases except those of  $\epsilon$  *Hydrae* and  $\epsilon$  *Boötis* the fainter component is of the more advanced type. Perhaps the most interesting star in the list is the faint companion, itself a very close double, of  $\mu$  *Herculis*. This has the well marked characteristics of the "dwarf" type of M stars.

Under good conditions of definition there seems to be no difficulty in securing the separate spectra of stars of 2" distance even when the difference in magnitude is considerable.

W. S. ADAMS,

A. H. JOY.

#### PRELIMINARY PARALLAX OF MESSIER 51 (N. G. C. 5194).

Thirty-minute exposures taken at the equivalent 80-foot focus of the 60-inch reflector show the central part of the spiral nebula Messier 51 as a round star-like image, well suited to accurate measurement. Ten plates of good quality, taken in 1916 and 1917, were measured to see whether any sensible parallax could